इंटरनेट मानक

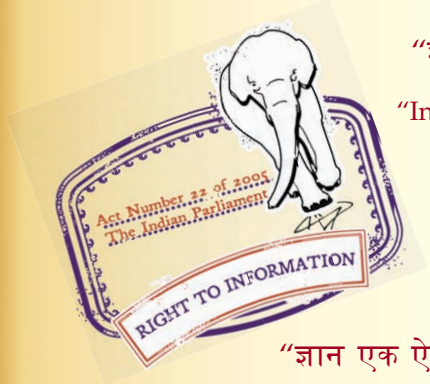
Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 8627 (1986): Gamma Acid [PCD 9: Organic Chemicals Alcohols and Allied Products and Dye Intermediates]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

IS : 8627 - 1986

(Reaffirmed 2000)

Indian Standard

SPECIFICATION FOR GAMMA ACID

(First Revision)

UDC 667·281:547·654·2

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2

October 1986

Indian Standard

SPECIFICATION FOR GAMMA ACID

(First Revision)

Dye Intermediates Sectional Committee, PCDC 11

Chairman	*Representing*
DR P. V. SUBRAMANIAM	Colour-Chem Ltd, Bombay
Members	
SHRI D. K. AGGARWAL	Directorate General of Technical Development, New Delhi
SHRI K. P. DOHARE (*Alternate*)	
DR K. APARAJITHAN	Atic Industries Ltd, Bulsar
SHRI A. M. KAPADIA (*Alternate*)	
SHRI S. D. BHARDWAJ	Ajanta Chemical Industries, New Delhi
SHRI KAPIL DEV (*Alternate*)	
SHRI M. V. DESAI	Atul Products Ltd, Atul
DR J. M. TUREL (*Alternate*)	
DR Y. B. DESAI	Universal Dyestuff Industries Ltd, Vadodara
SHRI HIMAT J. DOSHI	Indian Chemical Manufacturers Association, Calcutta
SHRI V. K. MENON	Amar Dye-Chem Ltd, Bombay
SHRI B. M. NAIK	Indian Dyestuff Industries Ltd, Bombay
SHRI D. G. PATWARDHAN	Development Commissioner, Small Scale Industries, New Delhi
SHRI D. P. SINGH (*Alternate*)	
SHRI S. RAJAGOPALAN	Hindustan Ciba-Geigy Ltd, Bombay
SHRI D. K. MURTHY (*Alternate*)	
SHRI K. L. RATHI	Sudarshan Chemical Industries Ltd, Pune
DR A. THOMAS (*Alternate*)	
DR J. N. SHAH	Sandoz (India) Ltd, Bombay
SHRI K. S. RINDANI (*Alternate*)	
SHRI N. R. TALPADE	Hickson and Dadajee Ltd, Bombay
SHRI M. W. SHENDE (*Alternate*)	

(*Continued on page* 2)

(*Continued from page* 1)

Members	*Representing*
SHRI S. L. TOSHNIWAL	Zenith Steel Pipes (Chemical Division), Bombay
DR V. V. RAO (*Alternate*)	
SHRI V. G. UPADHYE	Synthofine Chemicals of India Pvt Ltd, Bombay
SHRI H. K. VENKATRAMAIAH	Hindustan Organic Chemicals Ltd, Rasayani
SHRI M. S. SAXENA, DIRECTOR (P & C)	Director General, ISI (*Ex-officio Member*)

Secretary
SHRI A. KAR
Joint Director (P & C), ISI

Sulphonic Acids Dye Intermediates Subcommittee, PCDC 11 : 2

Convener	
DR S. SIDDHAN	Colour-Chem Ltd, Bombay
Members	
SHRI R. V. BUBNA	Piramal Rasayan Ltd, Bombay
SHRI RAVI ADUKIA (*Alternate*)	
SHRI M. V. DESAI	Atul Products Ltd, Atul
DR J. M. TUREL (*Alternate*)	
DR V. P. KUBBA	Indian Dyestuff Industries Ltd, Vadodara
SHRI K. L. RATHI	Sudarshan Chemicals Industries Ltd, Pune
DR A. THOMAS (*Alternate*)	
SHRI M. W. SHENDE	Hickson and Dadajee Limited, Bombay
SHRI K. P. RANE (*Alternate*)	
SHRI H. K. VENKATARAMAIAH	Hindustan Organic Chemicals Ltd, Rasayani

Indian Standard

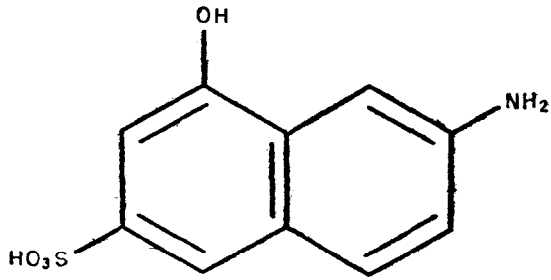
SPECIFICATION FOR GAMMA ACID

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 29 January 1986, after the draft finalized by the Dye Intermediates Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

0.2 Gamma acid ($C_{10}H_9O_4NS$) is an important intermediate used for making azo dyes. It is described as 2-amino-8naphthol-6-sulphonic acid. It is represented by the following structural formula:



GAMMA ACID
(Molecular Mass 239)

0.3 This standard was first published in 1977. The committee responsible for the preparation of this standard decided to revise it to modify the requirement of matter insoluble in sodium carbonate solution and also to incorporate the necessary details for assay. However, the Committee envisage to incorporate the chromatographic test method in near future after identification of various impurities.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS: 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard prescribes the requirements, and the methods of sampling and test for gamma acid.

2. REQUIREMENTS

2.1 Description — The material shall be in the form of a paste or in the form of light grey to grey lumps or powder.

2.2 The material shall also comply with the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR GAMMA ACID

Sl No,	Characteristic	Requirement	Method of Test Ref to Cl No. in Appendix A
(1)	(2)	(3)	(4)
i)	Matter insoluble in sodium carbonate solution, percent by mass, *Max*	0·2	A-2
ii)	Assay, percent by mass (on dry basis), *Min*	85·0	A-3

3. PACKING AND MARKING

3.1 Packing — The material shall be packed in steel drums (*see* IS : 2552-1979*) lined with suitable polyethylene film or as agreed to between the purchaser and the supplier. Each container shall be securely closed.

3.2 Marking — Each container shall bear legibly and indelibly the following information:

a) Name of the material;
b) Name of the manufacturer and his recognized trade-mark, if any;
c) Batch number; and
d) Tare, net and gross mass.

3.2.1 The containers may also be marked with the ISI Certification Mark.

Note — The use of the ISI Certification Mark is governed by the provision of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian

*Specification for steel drums (galvanized and ungalvanized) (*second revision*).

Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian StandardsI nstitution,

4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in 3 of IS : 5299-1969*.

4.2 Number of Tests — Tests for description, assay and matter insoluble in sodium carbonate solution shall be conducted on each of the individual samples.

4.3 Criteria for Conformity — The lot shall be declared as conforming to the requirement of description, assay and matter insoluble in sodium carbonate solution, if each of the test results as obtained in **4.2** satisfies the relevant requirements given in **2.1**, **2.2** and Table 1.

5. TEST METHODS

5.1 Tests shall be carried out according to the methods prescribed in Appendix A. Reference to relevant clauses of Appendix A is given in col 4 of Table 1.

5.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977†) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

APPENDIX A

(*Table* 1 and *Clause* 5.1)

METHODS OF TEST FOR GAMMA ACID

A.-1. PREPARED SAMPLE

A-1.1 Dry the material at 105 ± 1°C to constant mass. Grind and mix well. Transfer the material to a wide-mouthed bottle and stopper it. Do not expose the sample to an atmosphere containing acidic or alkaline fumes. Use this *prepared sample* for tests.

*Methods of sampling and tests for dye intermediates.

†Specification for water for general laboratory use (*second revision*).

A-2. DETERMINATION OF MATTER INSOLUBLE IN SODIUM CARBONATE SOLUTION

A-2.1 Reagents

A-2.1.1 *Sodium Carbonate Solution* — 20 percent (*m/v*).

A-2.1.2 *Brilliant Yellow Indicator Paper*

A-2.2 Procedure

A-2.2.1 Weigh accurately about 12 g of the prepared sample (*see* **A-1.1**) and transfer to a 500-ml beaker. Paste well with about 200 ml of water. Add sodium carbonate solution till alkaline to brilliant yellow indicator paper. Heat to dissolve the material completely. Filter hot through counterpoised filter paper and wash the residue with hot water till the filtrate is free from alkali. Dry the residue at 100 ± 5°C to constant mass.

A-2.2.2 Transfer quantitatively the filtrate and washings together into 500-ml volumetric flask and dilute with water up to the mark at room temperature. Mix well. Use the solution for test in **A-3.**

A-2.3 Calculation

$$\text{Matter insoluble in sodium carbonate solution, percent by mass} = \frac{m \times 100}{M}$$

where

m = mass in g of the residue, and

M = mass in g of the material taken for the test.

A-3. ASSAY

A-3.1 Reagents

A-3.1.1 *Acetic Acid Solution* — 10 percent (*v/v*).

A-3.1.2 *Sodium Acetate Solution* —20 percent (*m/v*).

A-3.1.3 *Standard p-Nitroaniline Diazo Solution* — 0·1 N.

A-3.1.4 *H Acid, Neutral* — Dissolve 0·5 g of purified H-Acid in 10-ml of 20 percent (*m/v*) sodium acetate solution. Dilute to 20 ml with 20 percent (*m/v*) sodium acetate and mix well.

A-3.1.5 *Common Salt* — *See* IS : 797-1976*.

*Specification for common salt for chemical industries (*second revision*).

A-3.2 Procedure

A-3.2.1 Pipette out 50 ml aliquot from volumetric solution prepared for the determination of insolubles in sodium carbonate solution (*see* **A-2.2.2**) into a one-litre breaker. Add about 300 ml of water and render faintly acidic to litmus paper with acetic acid. Add about 175 ml of sodium acetate solution and washed ice to cool to 0 to 5°C. Titrate, while stirring mechanically at 0 to 5°C with *p*-nitroaniline diazo using neutral H - acid as indicator (**A-3.1.4**). Towards the end, add 100 g of common salt to precipitate the dye. The end point is taken when a slight excess of diazo is shown for 5 minutes period by the following test.

A-3.2.1.1 Spot a drop of coupling slurry alongside a drop of H-acid indicator (solution neutral) on filter paper (Whatman No. 1 or equivalent) so that outspreads merge. The formation of a faint red purple line at the interjunction indicates excess diazo.

A-3.3 Calculation

$$\text{Assay (coupling value), percent by mass} = \frac{V_1 \times N_1 \times 239}{M}$$

where

V_1 = volume in ml of the *p*-nitroaniline diazo solution used in the test,

N_1 = normality of *p*-nitroaniline diazo solution, and

M = mass in g of the material taken for the test (*see* **A-2.2.1**).

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s(s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2